

From w4rl at bellsouth.net Wed Jun 8 01:28:50 2016  
From: w4rl at bellsouth.net (Robert)  
Date: Wed, 8 Jun 2016 00:28:50 -0500  
Subject: [BoatAnchors] Haystack electronics parts and shuch  
Message-ID: <ac35578f-5fd6-2f89-8dcf-97da5af7faa4@bellsouth.net>

Hi Fellas,

Years ago I ordered from and had the website run by an every innovative ham radio boatanchorite gentleman.

Make rare needed capacitors for our glow bottles that glow in the dark.

Does anyone remember his website or how to get in touch with him?

Thanks for the read es bst 73

Robert W4RL Pensacola FL

--

A veteran - whether active duty, retired, National Guard or Reserve - is someone who, at one point in his or her life, wrote a check made payable to "The United States of America" for an amount of "up to and including their life."

From 1oldlens1 at ix.netcom.com Wed Jun 8 01:40:32 2016  
From: 1oldlens1 at ix.netcom.com (Richard Knoppow)  
Date: Tue, 7 Jun 2016 22:40:32 -0700  
Subject: [BoatAnchors] Haystack electronics parts and shuch  
In-Reply-To: <ac35578f-5fd6-2f89-8dcf-97da5af7faa4@bellsouth.net>  
References: <ac35578f-5fd6-2f89-8dcf-97da5af7faa4@bellsouth.net>  
Message-ID: <3df64e85-dd1e-cdfd-15cd-1bb84d8ea02b@ix.netcom.com>

Perhaps you mean Tom at Hayseedhamfest who makes can capacitors.  
All new parts, not restuffed. Bought lots of stuff from him.  
<https://hayseedhamfest.com/>

On 6/7/2016 10:28 PM, Robert via BoatAnchors wrote:

> Hi Fellas,

>

> Years ago I ordered from and had the website run by an every innovative  
> ham radio boatanchorite gentleman.

>

> Make rare needed capacitors for our glow bottles that glow in the dark.

>  
> Does anyone remember his website or how to get in touch with him?  
>  
> Thanks for the read es bst 73  
>  
> Robert W4RL Pensacola FL  
>  
>

--  
Richard Knoppow  
1oldlens1 at ix.netcom.com  
WB6KBL

From artleb at earthlink.net Wed Jun 8 01:45:20 2016  
From: artleb at earthlink.net (Art Lebermann)  
Date: Tue, 7 Jun 2016 22:45:20 -0700 (GMT-07:00)  
Subject: [BoatAnchors] Haystack electronics parts and shuch  
Message-ID: <9305406.1465364720422.JavaMail.wam@elwamui-milano.atl.sa.earthlink.net>

They also supply capacitor kits, with all parts needed to re-cap our favorite boatanchors.

Art Lebermann  
W6REQ

-----Original Message-----

>From: Richard Knoppow via BoatAnchors <boatanchors at theporch.com>  
>Sent: Jun 7, 2016 10:40 PM  
>To: boatanchors at theporch.com  
>Subject: Re: [BoatAnchors] Haystack electronics parts and shuch

>  
> Perhaps you mean Tom at Hayseedhamfest who makes can capacitors.  
>All new parts, not restuffed. Bought lots of stuff from him.  
><https://hayseedhamfest.com/>

>  
>  
>On 6/7/2016 10:28 PM, Robert via BoatAnchors wrote:  
>> Hi Fellas,  
>>  
>> Years ago I ordered from and had the website run by an every innovative  
>> ham radio boatanchorite gentleman.  
>>  
>> Make rare needed capacitors for our glow bottles that glow in the dark.  
>>  
>> Does anyone remember his website or how to get in touch with him?

>>  
>> Thanks for the read es bst 73  
>>  
>> Robert W4RL Pensacola FL  
>>  
>>  
>  
>--  
>Richard Knoppow  
>1oldlens1 at ix.netcom.com  
>WB6KBL  
>-----  
>BoatAnchors mailing list  
>BoatAnchors at theporch.com  
><https://minime.theporch.com/mailman/listinfo/boatanchors>

From w4rl at bellsouth.net Wed Jun 8 02:34:31 2016  
From: w4rl at bellsouth.net (Robert)  
Date: Wed, 8 Jun 2016 01:34:31 -0500  
Subject: [BoatAnchors] Haystack electronics parts and shuch  
In-Reply-To: <3df64e85-dd1e-cdfd-15cd-1bb84d8ea02b@ix.netcom.com>  
References: <ac35578f-5fd6-2f89-8dcf-97da5af7faa4@bellsouth.net>  
<3df64e85-dd1e-cdfd-15cd-1bb84d8ea02b@ix.netcom.com>  
Message-ID: <d7388a54-81c1-4443-b077-73486aaa71f1@bellsouth.net>

Thanks, Richard, That's the (his) website!

73

Robert W4RL Pensacola FL

On 6/8/2016 12:40 AM, Richard Knoppow via BoatAnchors wrote:  
> Perhaps you mean Tom at Hayseedhamfest who makes can capacitors.  
> All new parts, not restuffed. Bought lots of stuff from him.  
> <https://hayseedhamfest.com/>  
>  
>  
> On 6/7/2016 10:28 PM, Robert via BoatAnchors wrote:  
>> Hi Fellas,  
>>  
>> Years ago I ordered from and had the website run by an every innovative  
>> ham radio boatanchorite gentleman.  
>>  
>> Make rare needed capacitors for our glow bottles that glow in the dark.  
>>

>> Does anyone remember his website or how to get in touch with him?  
>>  
>> Thanks for the read es bst 73  
>>  
>> Robert W4RL Pensacola FL  
>>  
>>  
>

--

A veteran - whether active duty, retired, National Guard or Reserve - is someone who, at one point in his or her life, wrote a check made payable to "The United States of America" for an amount of "up to and including their life."

From jjcurry at sbcglobal.net Wed Jun 8 03:47:42 2016  
From: jjcurry at sbcglobal.net (Joseph J. Curry)  
Date: Wed, 8 Jun 2016 00:47:42 -0700  
Subject: [BoatAnchors] Haystack electronics parts and shuch  
In-Reply-To: <ac35578f-5fd6-2f89-8dcf-97da5af7faa4@bellsouth.net>  
References: <ac35578f-5fd6-2f89-8dcf-97da5af7faa4@bellsouth.net>  
Message-ID: <00ad01d1c15a\$0ad58d80\$2080a880\$@sbcglobal.net>

Robert:

I have purchased two caps from this outfit. They are excellent and the service is great.

<https://hayseedhamfest.com/>

email: sales at hayseedhamfest.com

73s,

Joe  
K3ICO

-----Original Message-----

From: Robert [mailto:w4rl at bellsouth.net]  
Sent: 07 June, 2016 22:29  
To: Boatanchors List  
Subject: [BoatAnchors] Haystack electronics parts and shuch

Hi Fellas,

Years ago I ordered from and had the website run by an every innovative ham radio boatanchorite gentleman.

Make rare needed capacitors for our glow bottles that glow in the dark.

Does anyone remember his website or how to get in touch with him?

Thanks for the read es bst 73

Robert W4RL Pensacola FL

--

A veteran - whether active duty, retired, National Guard or Reserve - is someone who, at one point in his or her life, wrote a check made payable to "The United States of America"

for an amount of "up to and including their life."

---

This email has been checked for viruses by Avast antivirus software.

<https://www.avast.com/antivirus>

From infomet at embarqmail.com Wed Jun 8 06:39:59 2016

From: infomet at embarqmail.com (Wilson)

Date: Wed, 8 Jun 2016 06:39:59 -0400

Subject: [BoatAnchors] Haystack electronics parts and shuch

In-Reply-To: <ac35578f-5fd6-2f89-8dcf-97da5af7faa4@bellsouth.net>

References: <ac35578f-5fd6-2f89-8dcf-97da5af7faa4@bellsouth.net>

Message-ID: <1C044940EF3A4358B52B27DAAE4F9431@WilsonPC>

<https://hayseedhamfest.com/>

-----Original Message-----

From: Robert

Sent: Wednesday, June 08, 2016 1:28 AM

To: Boatanchors List

Subject: [BoatAnchors] Haystack electronics parts and shuch

Hi Fellas,

Years ago I ordered from and had the website run by an every innovative ham radio boatanchorite gentleman.

Make rare needed capacitors for our glow bottles that glow in the dark.

Does anyone remember his website or how to get in touch with him?

Thanks for the read es bst 73

Robert W4RL Pensacola FL

--

A veteran - whether active duty, retired, National Guard or Reserve - is someone who, at one point in his or her life, wrote a check made payable to "The United States of America" for an amount of "up to and including their life."

From k0myw at sbcglobal.net Wed Jun 8 09:18:57 2016  
From: k0myw at sbcglobal.net (Michael OBrien)  
Date: Wed, 8 Jun 2016 13:18:57 +0000 (UTC)  
Subject: [BoatAnchors] Haystack electronics parts and shuch  
References: <1989414283.439628.1465391937802.JavaMail.yahoo.ref@mail.yahoo.com>  
Message-ID: <1989414283.439628.1465391937802.JavaMail.yahoo@mail.yahoo.com>

Robert,

You may have dealt with Everett Hoard who operated Frontier Capacitors in one of the Dakotas. He was a very capable fellow, but is now SK.

I can enthusiastically second the recommendations you've already received about Hayseed. Great products, nice folk.

73,  
Mike, KOMYW

-----  
On Wed, 6/8/16, Robert via BoatAnchors <boatanchors at theporch.com> wrote:

Subject: [BoatAnchors] Haystack electronics parts and shuch  
To: "Boatanchors List" <boatanchors at theporch.com>  
Date: Wednesday, June 8, 2016, 12:28 AM

Hi Fellas,

Years ago I ordered from and had the website run by an every innovative ham radio boatanchorite gentleman.

Make rare needed capacitors for our glow bottles that glow in the dark.

Does anyone remember his website or how to get in touch with him?

Thanks for the read es bst 73

Robert W4RL Pensacola FL

--

A veteran - whether active duty, retired, National Guard? or Reserve - is someone who, at one point in his or her life, wrote a check made payable to "The United States of America" for an amount of "up to and including their life."

-----  
BoatAnchors mailing list  
BoatAnchors at theporch.com  
<https://minime.theporch.com/mailman/listinfo/boatanchors>

From ranickel at comcast.net Wed Jun 8 11:41:36 2016  
From: ranickel at comcast.net (Robert Nickels)  
Date: Wed, 8 Jun 2016 10:41:36 -0500  
Subject: [BoatAnchors] Haystack electronics parts and shuch  
In-Reply-To: <ac35578f-5fd6-2f89-8dcf-97da5af7faa4@bellsouth.net>  
References: <ac35578f-5fd6-2f89-8dcf-97da5af7faa4@bellsouth.net>  
Message-ID: <b6a6c5dc-fe09-0a01-9848-3df3e5e523f1@comcast.net>

Posting the following on behalf of Tom from Hayseed (not stack!)  
Hamfest: - W9RAN

---

Yes, Bob is a very good guy with a good sense of humor and a pretty tough cookie - moral-fiber-wise. He's picked up some kits over the years, an HO-10 for sure, and also a TR-4C that went to him via Ken Gordon's qth due to someone's mix-up in the shipping department here. Mine, I think.

Thanks, I'll get in touch with him.

73,  
Tom n0jmy

Hayseed Hamfest LLC .

From wb0eq at yahoo.com Thu Jun 9 12:10:19 2016  
From: wb0eq at yahoo.com (John Sehring)  
Date: Thu, 9 Jun 2016 16:10:19 +0000 (UTC)  
Subject: [BoatAnchors] Tube matching  
References: <907258480.282407.1465488619858.JavaMail.yahoo.ref@mail.yahoo.com>  
Message-ID: <907258480.282407.1465488619858.JavaMail.yahoo@mail.yahoo.com>

I am no expert on the subject of vacuum tube matching, neither absolute reasons for nor technique.

But I offer you:

<https://www.apexmatching.com/>

which has the most comprehensive explanation I've seen. I leave it to the vacuum tube cognoscenti on this list for comment.

They also sell tubes--yes, even our beloved 6JB6's--and offer matched sets of them.

They also offer lots of parts and components for the BA crowd. They seem to cater to the hollow-state guitar amp crowd but we BA'ers have much the same needs.

--John Sehring VE6EQR-WB0EQ nr Calgary, Alberta, Canada

From gumbear at pacbell.net Thu Jun 9 17:08:11 2016  
From: gumbear at pacbell.net (Arden Allen)  
Date: Thu, 9 Jun 2016 14:08:11 -0700  
Subject: [BoatAnchors] Tube matching  
In-Reply-To: <907258480.282407.1465488619858.JavaMail.yahoo@mail.yahoo.com>  
References: <907258480.282407.1465488619858.JavaMail.yahoo.ref@mail.yahoo.com>  
<907258480.282407.1465488619858.JavaMail.yahoo@mail.yahoo.com>  
Message-ID: <0DCBA9DE117B44D287E7FC27423E8100@Lenovo>

>

I am no expert on the subject of vacuum tube matching, neither absolute reasons for nor technique.

But I offer you:

<https://www.apexmatching.com/>



"Apex? Matching is a complex multi-step process designed to ensure that you get the highest-quality matched tubes available. We perform extensive testing and analysis on each tube that runs through our system to provide an incredibly accurate and precision-matched tube set. Discover our process for matching tubes."

I think I'll stick to wine. No matching required, just good glass.

Arden Allen  
KB6NAX

He who is cruel to animals becomes  
hard also in his dealings with men.  
We can judge the heart of a man by  
his treatment of animals.  
?Immanuel Kant

From dave at horsfall.org Thu Jun 9 18:30:23 2016  
From: dave at horsfall.org (Dave Horsfall)  
Date: Fri, 10 Jun 2016 08:30:23 +1000 (EST)  
Subject: [BoatAnchors] Tube matching  
In-Reply-To: <0DCBA9DE117B44D287E7FC27423E8100@Lenovo>  
References: <907258480.282407.1465488619858.JavaMail.yahoo.ref@mail.yahoo.com>  
<907258480.282407.1465488619858.JavaMail.yahoo@mail.yahoo.com>  
<0DCBA9DE117B44D287E7FC27423E8100@Lenovo>  
Message-ID: <alpine.BSF.2.11.1606100825350.1057@aneurin.horsfall.org>

On Thu, 9 Jun 2016, Arden Allen via BoatAnchors wrote:

> "Apex? Matching is a complex multi-step process designed to ensure that  
> you get the highest-quality matched tubes available. We perform  
> extensive testing and analysis on each tube that runs through our system  
> to provide an incredibly accurate and precision-matched tube set.  
> Discover our process for matching tubes."  
>  
> I think I'll stick to wine. No matching required, just good glass.

Quite right; I get annoyed by those reviews that say something along the lines of "With this meal, we recommend this wine".

One sorta gets the feeling that said reviewer is pocketing money from said wine company...

OK, we're getting slightly OT, but every good mailing list does :-)

--

Dave Horsfall DTM (VK2KFU) "Those who don't understand security will suffer."

From spr at earthlink.net Thu Jun 9 23:21:45 2016

From: spr at earthlink.net (Scott Robinson)

Date: Thu, 9 Jun 2016 20:21:45 -0700

Subject: [BoatAnchors] Tube matching

In-Reply-To: <alpine.BSF.2.11.1606100825350.1057@aneurin.horsfall.org>

References: <907258480.282407.1465488619858.JavaMail.yahoo.ref@mail.yahoo.com>

<907258480.282407.1465488619858.JavaMail.yahoo@mail.yahoo.com>

<0DCBA9DE117B44D287E7FC27423E8100@Lenovo>

<alpine.BSF.2.11.1606100825350.1057@aneurin.horsfall.org>

Message-ID: <b506336b-c4a3-fa36-31af-43f73a55e6cc@earthlink.net>

Folks,

Any audio power amplifier that I build--including the 4W pp triode (6BX7) in my SP-600, has three pots: bias, DC balance, and AC balance. With these, I don't need matched tubes, although you do need a distortion analyzer.

Peace,

Scott Robinson

On 6/9/16 3:30 PM, Dave Horsfall via BoatAnchors wrote:

> On Thu, 9 Jun 2016, Arden Allen via BoatAnchors wrote:

>

>> "Apex? Matching is a complex multi-step process designed to ensure that  
>> you get the highest-quality matched tubes available. We perform  
>> extensive testing and analysis on each tube that runs through our system  
>> to provide an incredibly accurate and precision-matched tube set.  
>> Discover our process for matching tubes."

>>

>> I think I'll stick to wine. No matching required, just good glass.

>

> Quite right; I get annoyed by those reviews that say something along the  
> lines of "With this meal, we recommend this wine".

>

> One sorta gets the feeling that said reviewer is pocketing money from said  
> wine company...

>

> OK, we're getting slightly OT, but every good mailing list does :-)

>

From wb3fau55 at neo.rr.com Fri Jun 10 04:57:07 2016  
From: wb3fau55 at neo.rr.com (wb3fau55 at neo.rr.com)  
Date: Fri, 10 Jun 2016 4:57:07 -0400  
Subject: [BoatAnchors] Tube matching  
In-Reply-To: <b506336b-c4a3-fa36-31af-43f73a55e6cc@earthlink.net>  
Message-ID: <20160610085707.BU2QQ.76526.root@cdptpa-web14>

Guys- what are we to do if a 12AX7 does not have equal output from both sections?

[no, just kidding] Could be a real problem for audio phools? 73s Russ.  
---- Scott Robinson via BoatAnchors <boatanchors at theporch.com> wrote:  
> Folks,

Any audio power amplifier that I build--including the 4W pp triode (6BX7) in my SP-600, has three pots: bias, DC balance, and AC balance. With these, I don't need matched tubes, although you do need a distortion analyzer.

Peace,

Scott Robinson

On 6/9/16 3:30 PM, Dave Horsfall via BoatAnchors wrote:  
> On Thu, 9 Jun 2016, Arden Allen via BoatAnchors wrote:  
>  
>> "Apex? Matching is a complex multi-step process designed to ensure that  
>> you get the highest-quality matched tubes available. We perform  
>> extensive testing and analysis on each tube that runs through our system  
>> to provide an incredibly accurate and precision-matched tube set.  
>> Discover our process for matching tubes."  
>>  
>> I think I'll stick to wine. No matching required, just good glass.  
>  
> Quite right; I get annoyed by those reviews that say something along the  
> lines of "With this meal, we recommend this wine".  
>  
> One sorta gets the feeling that said reviewer is pocketing money from said  
> wine company...  
>  
> OK, we're getting slightly OT, but every good mailing list does :-)  
>

---

BoatAnchors mailing list  
BoatAnchors at theporch.com  
<https://minime.theporch.com/mailman/listinfo/boatanchors>

From john.shriver at gmail.com Fri Jun 10 07:11:01 2016  
From: john.shriver at gmail.com (John Shriver)  
Date: Fri, 10 Jun 2016 07:11:01 -0400  
Subject: [BoatAnchors] Tube matching  
In-Reply-To: <20160610085707.BU2QQ.76526.root@cdptpa-web14>  
References: <20160610085707.BU2QQ.76526.root@cdptpa-web14>  
Message-ID: <CDCC1B04-3CA9-479D-BFF1-B6F2F0BEBB06@gmail.com>

Negative feedback is how amplifier designs classically dealt with inconsistent stage gain due to tube variation.

For no-feedback designs like Tektronix scopes, you had to recalibrate after changing a tube. Diddle-pots. Of course, Tektronix also designed the stages so that the gain was primarily set by the passive components, not by the tubes. This also leads to stages that are very linear over a wide dynamic range.

However, no-feedback designs are now popular in audio, and some of them do require selecting tubes to get good channel balance.

> On Jun 10, 2016, at 4:57 AM, Russ Dworakowski WB3FAU via BoatAnchors  
<boatanchors at theporch.com> wrote:  
>  
> Guys- what are we to do if a 12AX7 does not have equal output from both  
sections?  
> [no, just kidding] Could be a real problem for audio phools? 73s Russ.

From brianclarke01 at optusnet.com.au Fri Jun 10 23:19:00 2016  
From: brianclarke01 at optusnet.com.au (Brian)  
Date: Sat, 11 Jun 2016 13:19:00 +1000  
Subject: [BoatAnchors] Tube matching  
In-Reply-To: <CDCC1B04-3CA9-479D-BFF1-B6F2F0BEBB06@gmail.com>  
References: <20160610085707.BU2QQ.76526.root@cdptpa-web14>  
<CDCC1B04-3CA9-479D-BFF1-B6F2F0BEBB06@gmail.com>  
Message-ID: <99B0DED1AC0F413691729BE1A55F230E@BrianPC>

Tube matching is not just for gain. Where inter-stage transformers are involved in push-pull circuits, current balance is also very important. Changing grid bias to achieve anode current balance may not balance the inherent, and unique per-tube non-linearity of the anode-grid characteristics of tube pairs.

73 de Brian, VK2GCE

On Friday, June 10, 2016 9:11 PM, John said:

Negative feedback is how amplifier designs classically dealt with

inconsistent stage gain due to tube variation.

For no-feedback designs like Tektronix scopes, you had to recalibrate after changing a tube. Diddle-pots. Of course, Tektronix also designed the stages so that the gain was primarily set by the passive components, not by the tubes. This also leads to stages that are very linear over a wide dynamic range.

However, no-feedback designs are now popular in audio, and some of them do require selecting tubes to get good channel balance.

From arc5 at ix.netcom.com Fri Jun 10 23:21:43 2016  
From: arc5 at ix.netcom.com (David Stinson)  
Date: Fri, 10 Jun 2016 22:21:43 -0500  
Subject: [BoatAnchors] Forest Service Northern Radio Company Type 450  
Message-ID: <22C776D82D1B40A8B50D3F773FF740D9@DaddyPC>

At HamCom in Dallas today, I found a cool little Forest Service radio built by Northern Radio Company, called a "Type 450" which came from a forest worker in Alaska. 1960s Transistor/Tube hybrid. 6 Crystal controlled channels. 455 KC IF. Callsign penciled on it: "BLM 139341" I traced the primary power and can light it up. Audio stages are working. The previous owner had it marked "10 and 15 meters" but the coils in it sure don't look like 10 meters. Appears to run on 6 VDC Battery. Nothing on Google. Does anyone have any information on this neat little rig? Photos at:

<https://goo.gl/photos/dmpa7cY3ddwfAUXc9>

Do have the case just forgot to take a photo.  
Anything? Please?

TNX OM ES 73 DE Dave AB5S

From 1oldlens1 at ix.netcom.com Sat Jun 11 15:25:05 2016  
From: 1oldlens1 at ix.netcom.com (Richard Knoppow)  
Date: Sat, 11 Jun 2016 12:25:05 -0700  
Subject: [BoatAnchors] Tube matching  
In-Reply-To: <99B0DED1AC0F413691729BE1A55F230E@BrianPC>  
References: <20160610085707.BU2QQ.76526.root@cdptpa-web14>

<CDCC1B04-3CA9-479D-BFF1-B6F2F0BEBB06@gmail.com>  
<99B0DED1AC0F413691729BE1A55F230E@BrianPC>  
Message-ID: <e016db97-9b6b-7815-3a2d-e17b8b894a4f@ix.netcom.com>

In a push-pull audio amplifier its important to null out the DC in the core. The two tubes should have as nearly identical plate current is possible. The characteristics of the tubes should be close but the requirement for AC balance depends on the class of operation of the amplifier. In a Class-A amp it makes relatively little difference, in a Class-B amp its vital.

On 6/10/2016 8:19 PM, Brian via BoatAnchors wrote:

> Tube matching is not just for gain. Where inter-stage transformers are  
> involved in push-pull circuits, current balance is also very important.  
> Changing grid bias to achieve anode current balance may not balance the  
> inherent, and unique per-tube non-linearity of the anode-grid  
> characteristics of tube pairs.  
> 73 de Brian, VK2GCE  
>  
> On Friday, June 10, 2016 9:11 PM, John said:  
>  
> Negative feedback is how amplifier designs classically dealt with  
> inconsistent stage gain due to tube variation.  
>  
> For no-feedback designs like Tektronix scopes, you had to recalibrate  
> after changing a tube. Diddle-pots. Of course, Tektronix also designed  
> the stages so that the gain was primarily set by the passive components,  
> not by the tubes. This also leads to stages that are very linear over a  
> wide dynamic range.  
>  
> However, no-feedback designs are now popular in audio, and some of them  
> do require selecting tubes to get good channel balance.  
>  
> -----  
> BoatAnchors mailing list  
> BoatAnchors at theporch.com  
> <https://minime.theporch.com/mailman/listinfo/boatanchors>  
>

--  
Richard Knoppow  
1oldlens1 at ix.netcom.com  
WB6KBL

From spr at earthlink.net Sat Jun 11 15:39:44 2016  
From: spr at earthlink.net (Scott Robinson)  
Date: Sat, 11 Jun 2016 12:39:44 -0700

Subject: [BoatAnchors] Tube matching  
In-Reply-To: <e016db97-9b6b-7815-3a2d-e17b8b894a4f@ix.netcom.com>  
References: <20160610085707.BU2QQ.76526.root@cdptpa-web14>  
<CDCC1B04-3CA9-479D-BFF1-B6F2F0BEBB06@gmail.com>  
<99B0DED1AC0F413691729BE1A55F230E@BrianPC>  
<e016db97-9b6b-7815-3a2d-e17b8b894a4f@ix.netcom.com>  
Message-ID: <51195e71-da27-d75e-e470-e6f6262acad9@earthlink.net>

Hi Richard,

The AC balance matters, too, even in class A service. After all, one of the major virtues of class A is that it out all the even order distortion products, and this is only true if the two sides are equal. Here's how I adjust my 3 pots (bias, DC balance, and AC balance):

- 1) Preset both balance pots in the middle of their ranges.
- 2) Apply power and set the bias for the cathode current you want.
- 3) Feed in a 1 kHz sine wave and measure the output distortion. Adjust gain for near clipping and adjust the AC balance pot for minimum distortion.
- 4) Move the frequency to 50 Hz or whatever is the lowest frequency your output transformer will permit without core saturation. Leave the level set near clipping.  
Adjust the DC balance pot for minimum distortion.

You can repeat steps 3 and 4 if you like.

Both distortion adjustments will have quite a deep null, resulting in a large reduction from nominal center, and tube balancing, while desirable, is no longer fussy. You can use the tubes you have and save money, too.

Regards,

Scott

On 6/11/16 12:25 PM, Richard Knoppow via BoatAnchors wrote:

> In a push-pull audio amplifier its important to null out the DC in  
> the core. The two tubes should have as nearly identical plate current is  
> possible. The characteristics of the tubes should be close but the  
> requirement for AC balance depends on the class of operation of the  
> amplifier. In a Class-A amp it makes relatively little difference, in a  
> Class-B amp its vital.

>

> On 6/10/2016 8:19 PM, Brian via BoatAnchors wrote:

>> Tube matching is not just for gain. Where inter-stage transformers are

>> involved in push-pull circuits, current balance is also very important.  
>> Changing grid bias to achieve anode current balance may not balance the  
>> inherent, and unique per-tube non-linearity of the anode-grid  
>> characteristics of tube pairs.  
>> 73 de Brian, VK2GCE  
>>  
>> On Friday, June 10, 2016 9:11 PM, John said:  
>>  
>> Negative feedback is how amplifier designs classically dealt with  
>> inconsistent stage gain due to tube variation.  
>>  
>> For no-feedback designs like Tektronix scopes, you had to recalibrate  
>> after changing a tube. Diddle-pots. Of course, Tektronix also designed  
>> the stages so that the gain was primarily set by the passive components,  
>> not by the tubes. This also leads to stages that are very linear over a  
>> wide dynamic range.  
>>  
>> However, no-feedback designs are now popular in audio, and some of them  
>> do require selecting tubes to get good channel balance.  
>>  
>> -----  
>> BoatAnchors mailing list  
>> BoatAnchors at theporch.com  
>> <https://minime.theporch.com/mailman/listinfo/boatanchors>  
>>  
>

From 1oldlens1 at ix.netcom.com Sat Jun 11 16:03:02 2016  
From: 1oldlens1 at ix.netcom.com (Richard Knoppow)  
Date: Sat, 11 Jun 2016 13:03:02 -0700  
Subject: [BoatAnchors] Tube matching  
In-Reply-To: <51195e71-da27-d75e-e470-e6f6262acad9@earthlink.net>  
References: <20160610085707.BU2QQ.76526.root@cdptpa-web14>  
<CDCC1B04-3CA9-479D-BFF1-B6F2F0BEBB06@gmail.com>  
<99B0DED1AC0F413691729BE1A55F230E@BrianPC>  
<e016db97-9b6b-7815-3a2d-e17b8b894a4f@ix.netcom.com>  
<51195e71-da27-d75e-e470-e6f6262acad9@earthlink.net>  
Message-ID: <0bbbfa16-f41a-e0af-496e-f564bb39261d@ix.netcom.com>

That makes sense.

On 6/11/2016 12:39 PM, Scott Robinson wrote:

> Hi Richard,  
>  
> The AC balance matters, too, even in class A service. After all, one of  
> the major virtues of class A is that it out all the even order  
> distortion products, and this is only true if the two sides are equal.



> Here's how I adjust my 3 pots (bias, DC balance, and AC balance):  
>  
> 1) Preset both balance pots in the middle of their ranges.  
>  
> 2) Apply power and set the bias for the cathode current you want.  
>  
> 3) Feed in a 1 kHz sine wave and measure the output distortion. Adjust  
> gain for near clipping and adjust the AC balance pot for minimum  
> distortion.  
>  
> 4) Move the frequency to 50 Hz or whatever is the lowest frequency your  
> output transformer will permit without core saturation. Leave the level  
> set near clipping.  
> Adjust the DC balance pot for minimum distortion.  
>  
> You can repeat steps 3 and 4 if you like.  
>  
> Both distortion adjustments will have quite a deep null, resulting in a  
> large reduction from nominal center, and tube balancing, while  
> desirable, is no longer fussy. You can use the tubes you have and save  
> money, too.  
>  
> Regards,  
>  
> Scott  
>  
> On 6/11/16 12:25 PM, Richard Knoppow via BoatAnchors wrote:  
>> In a push-pull audio amplifier its important to null out the DC in  
>> the core. The two tubes should have as nearly identical plate current is  
>> possible. The characteristics of the tubes should be close but the  
>> requirement for AC balance depends on the class of operation of the  
>> amplifier. In a Class-A amp it makes relatively little difference, in a  
>> Class-B amp its vital.  
>>  
>> On 6/10/2016 8:19 PM, Brian via BoatAnchors wrote:  
>>> Tube matching is not just for gain. Where inter-stage transformers are  
>>> involved in push-pull circuits, current balance is also very important.  
>>> Changing grid bias to achieve anode current balance may not balance the  
>>> inherent, and unique per-tube non-linearity of the anode-grid  
>>> characteristics of tube pairs.  
>>> 73 de Brian, VK2GCE  
>>>  
>>> On Friday, June 10, 2016 9:11 PM, John said:  
>>>  
>>> Negative feedback is how amplifier designs classically dealt with  
>>> inconsistent stage gain due to tube variation.  
>>>  
>>> For no-feedback designs like Tektronix scopes, you had to recalibrate

>>> after changing a tube. Diddle-pots. Of course, Tektronix also designed  
>>> the stages so that the gain was primarily set by the passive components,  
>>> not by the tubes. This also leads to stages that are very linear over a  
>>> wide dynamic range.

>>>

>>> However, no-feedback designs are now popular in audio, and some of them  
>>> do require selecting tubes to get good channel balance.

>>>

>>>

>>> -----  
>>> BoatAnchors mailing list

>>> BoatAnchors at theporch.com

>>> <https://minime.theporch.com/mailman/listinfo/boatanchors>

>>>

>>

>

--

Richard Knoppow

1oldlens1 at ix.netcom.com

WB6KBL

From n7rk at cox.net Sun Jun 12 20:24:33 2016

From: n7rk at cox.net (Dave Hollander)

Date: Sun, 12 Jun 2016 17:24:33 -0700

Subject: [BoatAnchors] FS: Telegraph Keys - Bugs and Straight Keys

Message-ID: <575DFD41.6060306@cox.net>

I will ship international. Tnx for looking.

1946 Vibroplex Original Bug - \$100 plus shipping

The serial number is 151470 dating this bug to 1946. This key appears to  
be complete and is in nice shape ready to use.

<http://n7rk.com/radiostuff9/1946vibro.jpg>

<http://n7rk.com/radiostuff9/1946vibro2.jpg>

<http://n7rk.com/radiostuff9/1946vibro3.jpg>

<http://n7rk.com/radiostuff9/1946vibro4.jpg>

Electric Speciality Bug - Telegraph Key, Cedar Rapids Bug - \$75 plus  
shipping

This is the only bug which was manufactured in kit form. Its name is  
stamped on the bottom: Electric Specialty Manufacturing Co. Cedar  
Rapids, Iowa. It is sometimes also referred to as the "Cedar Rapids  
Bug". These were made from 1939 until 1955. It sold for \$2.97 in 1939.

<http://n7rk.com/radiostuff9/crbug.jpg>

<http://n7rk.com/radiostuff9/crbug2.jpg>

<http://n7rk.com/radiostuff9/crbug3.jpg>

Winslow Leg Key - \$50 shipped

This KY-116/U was built by Winslow Electronics and uses a standard J-37 key mounted on a hinged base with leg clamps. The hinged base allows the key to be turned upright to set on a desk, if available. The key is shown in the down position for clamping onto the operator's leg. Actually, operating the key in this manner is pretty comfortable and pretty good CW can be sent with the key clamped to your leg. Certainly, the method was not for long-term operation and was intended for portable use where a table or desk wasn't practical.

The KY-116/U is the specified key for the GRC-19 set

[http://n7rk.com/radiostuff9/winslow\\_key.jpg](http://n7rk.com/radiostuff9/winslow_key.jpg)

[http://n7rk.com/radiostuff9/winslow\\_key2.jpg](http://n7rk.com/radiostuff9/winslow_key2.jpg)

[http://n7rk.com/radiostuff9/winslow\\_key3.jpg](http://n7rk.com/radiostuff9/winslow_key3.jpg)

[http://n7rk.com/radiostuff9/winslow\\_key4.jpg](http://n7rk.com/radiostuff9/winslow_key4.jpg)

[http://n7rk.com/radiostuff9/winslow\\_key5.jpg](http://n7rk.com/radiostuff9/winslow_key5.jpg)

[http://n7rk.com/radiostuff9/winslow\\_key6.jpg](http://n7rk.com/radiostuff9/winslow_key6.jpg)

Unknown "Skillman" Style Key - \$28 plus shipping

Looks like a Japanese Skillman but it isn't. No markings. Unknown Manufacturer.

<http://n7rk.com/radiostuff9/unknownkey2.jpg>

<http://n7rk.com/radiostuff9/unknownkey22.jpg>

<http://n7rk.com/radiostuff9/unknownkey23.jpg>

Tnx for looking.

73,

Dave N7RK

--

Dave Hollander N7RK

Arizona Tube Supply

<http://arizonatubesupply.com>

From arc5 at ix.netcom.com Wed Jun 15 01:01:55 2016

From: arc5 at ix.netcom.com (David Stinson)

Date: Wed, 15 Jun 2016 00:01:55 -0500

Subject: [BoatAnchors] My First "Forest Service" Radio

Message-ID: <72B2FE905EF342B39BA1DAA601AF3577@DaddyPC>

Found a really cute little AM transceiver at the HamCom hamfest in Irving, Texas on 10 June:

a Northern Radio Company type 450 AM transceiver,

circa 1963. It's marked with a BLM callsign but I think it was intended for "Forest Service" style operation. About the size of a shoe box. It came from Alaska and had a KL7 call dymo-labeled on it. Not a single word available on the web about it, nor any leads from mail reflectors or boards, so out came the scope and the meter and started tracing.

The transmitter filament circuit said the rig was 12 VDC primary power. TX and RX are both crystal-control on 6 channels. So far, I've determined that Channel 1 will cover 7160 MC, Channel 2 will cover 5 MC, Channels 3 and 4 will do 75 M phone. Not certain about channels 5 and 6 just yet, but they appear to cover 6 MC. I \*think\* you solder-up jumpers on the big bandswitch to decide what band of frequencies goes with what channel.

The receiver is solid-state using early PNP germaniums, is sensitive and fairly selective. 455 KC IF. Transmitter is a solid-state supply, 6CL6 oscillator and 6146 PA. About 12 W out properly matched. Output matching is similar to WWII rigs intended for short, capacitive antennas. Reminds me of an "updated" and miniturized BC-669.

Got it figured-out, crystallized-up and made the first contact with my old friend Ronnie W5SUM on 3885 this evening. Photos at:

<https://goo.gl/photos/dmpa7cY3ddwfAUXc9>

If some folks want more details on this little rig, let me know and I'll write more about it.

73 DE Dave AB5S

From artleb at earthlink.net Wed Jun 15 02:25:46 2016  
From: artleb at earthlink.net (Art Lebermann)  
Date: Tue, 14 Jun 2016 23:25:46 -0700 (GMT-07:00)  
Subject: [BoatAnchors] Tube socket saver?  
Message-ID: <9573652.1465971946741.JavaMail.wam@elwamui-royal.atl.sa.earthlink.net>

Looking for a 7-pin tube socket saver. Got one in your junk box?

Art Lebermann  
W6REQ

From listown at nanniandjack.com Wed Jun 15 14:16:35 2016  
From: listown at nanniandjack.com (Jack G F Hill)  
Date: Wed, 15 Jun 2016 13:16:35 -0500  
Subject: [BoatAnchors] Mouse droppings kill S/N  
Message-ID: <099b66c4-702c-590b-cb89-97ab8b8184d2@nanniandjack.com>

Gang-

It really does pain me to have to ask the entire group, when only a few individuals are so off-the-charts energy conscious that they can no longer be bothered to \*TRIM THE TE\*XT OF THE MESSAGE THEY ARE REPLYING TO!!!

\*I read both the digest and individual message threads, and today I finally had my fuse lit. One thread had \*EVERYTHING\* from every previous responder, \*INCLUDING ALL THE LIST SUPPLIED FOOTERS\* at the bottom of each post, one of which posts was a one line: "That makes sense." Perhaps the response made sense, but all that extra crap certainly did \*NOT\*!

My objection has nothing to do with internet bandwidth... 22 years ago when I took over the list, bandwidth was an issue, and dial-up connections were in need of help. My objection, and I can not stress enough how important I feel this is to me and the list, is about COURTESY. We have tried from the beginning to make BoatAnchors follow the paradigm of a symposium. At no time, in a symposium, would any of you think it necessary to repeat all prior comments and citations to say: "I agree." So why do you insist on doing it here?

It is so simple to press the appropriate button on your mouse and drag the mouse over all the stuff that does NOT need repeating (especially a few layers of list generated footers) and either DEL or BACKSPACE! Simple, courteous, and effectively lifts your signal out of the noise.

PLEASE, I BEG Y'ALL... \*DO NOT MAKE ME \*\*RE-INSTITUTE\*\*THE PENALTY BOX\*!  
\*\*--

Jack Hill, W4KH - BoatAnchors Listowner/Archiver  
listown at nanniandjack.com

"Plus ca change, plus c'est la meme chose"

"Il n'y a que les idiots qui ne changent jamais d'idee"

From navy.radio at gmail.com Wed Jun 15 15:46:04 2016  
From: navy.radio at gmail.com (Nick England)  
Date: Wed, 15 Jun 2016 15:46:04 -0400  
Subject: [BoatAnchors] Mouse droppings kill S/N  
In-Reply-To: <099b66c4-702c-590b-cb89-97ab8b8184d2@nanniandjack.com>  
References: <099b66c4-702c-590b-cb89-97ab8b8184d2@nanniandjack.com>  
Message-ID: <CAB55hNd5BakntDo0Ry1ENcoVEeE259Y4WeBAngaApNXLPFNU7w@mail.gmail.com>

Given the Subject Line, I expected a story similar to the discovery of cosmic background radiation...

<https://www.aps.org/programs/outreach/history/historicsites/penziaswilson.cfm>

73 & Have Fun

--  
Nick England K4NYW  
[www.navy-radio.com](http://www.navy-radio.com)

From arc5 at ix.netcom.com Wed Jun 15 16:00:34 2016  
From: arc5 at ix.netcom.com (=?utf-8?B?YXJjNUBpeC5uZXRjb20uY29t?=  
Date: Wed, 15 Jun 2016 20:00:34 GMT  
Subject: [BoatAnchors] Mouse droppings kill S/N  
Message-ID: <000f4242.2fd8470e6d1318f9@ix.netcom.com>

Lol I was thinking the same, Nick. Lord bless Jack and his patience.? Sent from my ain't-so-smartphone.

----- Original message-----From: Nick England?Given the Subject Line, I expected a story similar to the discovery of cosmic background radiation..

From wb0eq at yahoo.com Wed Jun 15 18:28:52 2016  
From: wb0eq at yahoo.com (John Sehring)  
Date: Wed, 15 Jun 2016 22:28:52 +0000 (UTC)  
Subject: [BoatAnchors] Tube matching  
References: <1469173512.4179103.1466029732467.JavaMail.yahoo.ref@mail.yahoo.com>

Message-ID: <1469173512.4179103.1466029732467.JavaMail.yahoo@mail.yahoo.com>

On Point 4, how do you tell when the core is saturated? Possible that might not take place due to output tube and/or B+ PS limitations?

==John VE6EQR

=====  
From: Scott Robinson <spr at earthlink.net>  
To: Richard Knoppow <1oldlens1 at ix.netcom.com>,

Hi Richard,

The AC balance matters, too, even in class A service. After all, one of the major virtues of class A is that it out all the even order distortion products, and this is only true if the two sides are equal. Here's how I adjust my 3 pots (bias, DC balance, and AC balance):

- 1) Preset both balance pots in the middle of their ranges.
- 2) Apply power and set the bias for the cathode current you want.
- 3) Feed in a 1 kHz sine wave and measure the output distortion. Adjust gain for near clipping and adjust the AC balance pot for minimum distortion.
- 4) Move the frequency to 50 Hz or whatever is the lowest frequency your output transformer will permit without core saturation. Leave the level set near clipping.  
Adjust the DC balance pot for minimum distortion.

You can repeat steps 3 and 4 if you like.

Both distortion adjustments will have quite a deep null, resulting in a large reduction from nominal center, and tube balancing, while desirable, is no longer fussy. You can use the tubes you have and save money, too.

Regards,

Scott

From dxguy at earthlink.net Thu Jun 16 07:21:38 2016  
From: dxguy at earthlink.net (don davis)

Date: Thu, 16 Jun 2016 04:21:38 -0700

Subject: [BoatAnchors] Tube matching

In-Reply-To: <1469173512.4179103.1466029732467.JavaMail.yahoo@mail.yahoo.com>

References: <1469173512.4179103.1466029732467.JavaMail.yahoo.ref@mail.yahoo.com>  
<1469173512.4179103.1466029732467.JavaMail.yahoo@mail.yahoo.com>

Message-ID: <!&!

AAAAAAAAAAAAAYAAAAAAAAA03NLm+r0kBFo+eoE0IVyavCgAAAAEAAAAKqqE5hBbtFKl1AKs2Zji54BAAAAAA  
==@earthlink.net>

Measure dc current on scope with applied square wave. Saturation occurs  
when current ramp has a large peak.

73 de don ad6pb

-----Original Message-----

From: BoatAnchors [mailto:boatanchors-bounces at theporch.com] On Behalf Of  
John Sehring via BoatAnchors

Sent: Wednesday, June 15, 2016 3:29 PM

To: Boatanchors List <boatanchors at theporch.com>

Subject: [BoatAnchors] Tube matching

On Point 4, how do you tell when the core is saturated? Possible that might  
not take place due to output tube and/or B+ PS limitations?

==John VE6EQR

From spr at earthlink.net Fri Jun 17 00:52:45 2016

From: spr at earthlink.net (Scott Robinson)

Date: Thu, 16 Jun 2016 21:52:45 -0700

Subject: [BoatAnchors] Tube matching

In-Reply-To: <1469173512.4179103.1466029732467.JavaMail.yahoo@mail.yahoo.com>

References: <1469173512.4179103.1466029732467.JavaMail.yahoo.ref@mail.yahoo.com>  
<1469173512.4179103.1466029732467.JavaMail.yahoo@mail.yahoo.com>

Message-ID: <ef44bb3d-0a8b-7283-d6d7-b9a875746f14@earthlink.net>

Hi John,

The core will nearly\* always saturate if the frequency is low enough. To  
find where that is, set the gain for just below clipping at 1 KHz and  
turn the gain down. You will eventually find either regular clipping or  
a kind of diagonal clipping.



\*I have one home brew PP 2A3 amplifier that is good for about 12 Watts but has an enormous output transformer that looks big enough for 50W. Down to 20 Hz, no core saturation.

Few people choose transformers this way, so my 'nearly always' stands.

Peace,

Scott

On 6/15/16 3:28 PM, John Sehring via BoatAnchors wrote:

>  
>  
> On Point 4, how do you tell when the core is saturated? Possible that might not  
take place due to output tube and/or B+ PS limitations?  
>  
> ==John VE6EQR  
>  
>  
> =====  
>  
> From: Scott Robinson <spr at earthlink.net>  
> To: Richard Knoppow <1oldlens1 at ix.netcom.com>,  
>  
> Hi Richard,  
>  
> The AC balance matters, too, even in class A service. After all, one of  
> the major virtues of class A is that it out all the even order  
> distortion products, and this is only true if the two sides are equal.  
> Here's how I adjust my 3 pots (bias, DC balance, and AC balance):  
>  
> 1) Preset both balance pots in the middle of their ranges.  
>  
> 2)Apply power and set the bias for the cathode current you want.  
>  
> 3) Feed in a 1 kHz sine wave and measure the output distortion. Adjust  
> gain for near clipping and adjust the AC balance pot for minimum distortion.  
>  
> 4) Move the frequency to 50 Hz or whatever is the lowest frequency your  
> output transformer will permit without core saturation. Leave the level  
> set near clipping.  
> Adjust the DC balance pot for minimum distortion.  
>  
> You can repeat steps 3 and 4 if you like.  
>  
> Both distortion adjustments will have quite a deep null, resulting in a  
> large reduction from nominal center, and tube balancing, while  
> desirable, is no longer fussy. You can use the tubes you have and save

> money, too.  
>  
> Regards,  
>  
> Scott  
> -----  
> BoatAnchors mailing list  
> BoatAnchors at theporch.com  
> <https://minime.theporch.com/mailman/listinfo/boatanchors>  
>

From wb3fau55 at neo.rr.com Fri Jun 17 12:49:52 2016  
From: wb3fau55 at neo.rr.com (wb3fau55 at neo.rr.com)  
Date: Fri, 17 Jun 2016 12:49:52 -0400  
Subject: [BoatAnchors] Tube matching  
In-Reply-To: <ef44bb3d-0a8b-7283-d6d7-b9a875746f14@earthlink.net>  
Message-ID: <20160617164952.UOUN5.224571.root@cdptpa-web24>

Hi Scott, 2A3s considered by some to be the best hi-fi sound available, at least at an early stage in hi fi history. So may I ask, what kind of speakers do you drive with that 2A3 amp? Perhaps something with 18 inch woofers? I like horns myself used in the mid and high freqs. Something with real high efficiency, not needing much power to fill a room with sound. Sorry for the change in direction on the thread. 73s Russ.

----- Scott Robinson via BoatAnchors <boatanchors at theporch.com> wrote:

> Hi John,  
>  
> The core will nearly\* always saturate if the frequency is low enough. To  
> find where that is, set the gain for just below clipping at 1 KHz and  
> turn the gain down. You will eventually find either regular clipping or  
> a kid of diagonal clipping.  
>  
> \*I have one home brew PP 2A3 amplifier that is good for about 12 Watts  
> but has an enormous output transformer that looks big enough for 50W.  
> Down to 20 Hz, no core saturation.  
>  
> Few people choose transformers this way, so my 'nearly always' stands.  
>  
> Peace,  
>  
> Scott  
>

> On 6/15/16 3:28 PM, John Sehring via BoatAnchors wrote:

> >  
> >

> > On Point 4, how do you tell when the core is saturated? Possible that might not take place due to output tube and/or B+ PS limitations?

> >  
> > ==John VE6EQR  
> >  
> >  
> > =====  
> >  
> > From: Scott Robinson <spr at earthlink.net>  
> > To: Richard Knoppow <1oldlens1 at ix.netcom.com>,  
> >  
> > Hi Richard,  
> >  
> > The AC balance matters, too, even in class A service. After all, one of  
> > the major virtues of class A is that it out all the even order  
> > distortion products, and this is only true if the two sides are equal.  
> > Here's how I adjust my 3 pots (bias, DC balance, and AC balance):  
> >  
> > 1) Preset both balance pots in the middle of their ranges.  
> >  
> > 2) Apply power and set the bias for the cathode current you want.  
> >  
> > 3) Feed in a 1 kHz sine wave and measure the output distortion. Adjust  
> > gain for near clipping and adjust the AC balance pot for minimum distortion.  
> >  
> > 4) Move the frequency to 50 Hz or whatever is the lowest frequency your  
> > output transformer will permit without core saturation. Leave the level  
> > set near clipping.  
> > Adjust the DC balance pot for minimum distortion.  
> >  
> > You can repeat steps 3 and 4 if you like.  
> >  
> > Both distortion adjustments will have quite a deep null, resulting in a  
> > large reduction from nominal center, and tube balancing, while  
> > desirable, is no longer fussy. You can use the tubes you have and save  
> > money, too.  
> >  
> > Regards,  
> >  
> > Scott  
> > -----  
> > BoatAnchors mailing list  
> > BoatAnchors at theporch.com  
> > <https://minime.theporch.com/mailman/listinfo/boatanchors>  
> >  
> > -----  
> > BoatAnchors mailing list  
> > BoatAnchors at theporch.com  
> > <https://minime.theporch.com/mailman/listinfo/boatanchors>

From zengmeiste at aol.com Fri Jun 17 14:06:28 2016  
From: zengmeiste at aol.com (Jammer)  
Date: Fri, 17 Jun 2016 14:06:28 -0400  
Subject: [BoatAnchors] tube socket saver; mouse droppings; tube matching  
In-Reply-To: <mailman.1290.1466139189.226.boatanchors@theporch.com>  
References: <mailman.1290.1466139189.226.boatanchors@theporch.com>  
Message-ID: <1555f8aed62-7414-1e87@webprd-a23.mail.aol.com>

[top-of-my-head thoughts]

Ah, well, one could RYO socket saver / extender? I suppose, with a spare socket and possibly pins from an old tube?

Jack, Jack, Jack. You think they're listening? Maybe it's just our email apps that're too dumb....

tube matching. kewl.

one solution for all these issues: YOUTUBE tutorials.

73 de KC9KEL Terry Bakowski, carefully hitting <CTL+A> and <DEL>

From 1oldlens1 at ix.netcom.com Fri Jun 17 14:36:31 2016  
From: 1oldlens1 at ix.netcom.com (Richard Knoppow)  
Date: Fri, 17 Jun 2016 11:36:31 -0700  
Subject: [BoatAnchors] Tube matching  
In-Reply-To: <20160617164952.UOUN5.224571.root@cdptpa-web24>  
References: <20160617164952.UOUN5.224571.root@cdptpa-web24>  
Message-ID: <cc4bab97-2bd3-75f7-6a3c-23ae8a4c5237@ix.netcom.com>

Mine, which are in storage at the moment, are c.1936 RCA Shearer horns with M-G-M spec HF drivers (aluminum diaphragms rather than Bakelite impregnated cloth). The woofers are 15". I narrowly missed a pair of Western Electric Mirrophonic speakers of the same general type but they got trashed before arrangements could be made to release them. The WE horns had two 18" "Loudspeaking Telephones" in them. The RCA HF drivers are the same throat size as the later Altec 288, the WE 594 drivers were 2" throat. The M-G-M spec drivers go out to 15Khz while the 594 (and later JBL 375) cut off pretty sharply at 8Khz. For motion picture reproduction of photographic sound tracks response above 8Khz is unnecessary. I had the RCA speakers in a garage for a while with home

built cross-over networks. It was surprisingly good sounding with very authoritative bass. The horns cut off at around 50Hz but have enough reserve to get down to about 40Hz. I used plain old battery chargers with a large capacitor added for field supplies. I would love to get these out of storage again but have no place to set them up plus my hearing is not very good any more.

These old theater speakers were designed when efficiency was important. Typical small theater amplifiers ran around 10 watts, the largest amps for very large theaters (thousands of seats) were about 50 Watts. Audiophools get the strangest ideas about tubes, like the almost religious opinions of the old WE 300B. I wonder what they are hearing. Back in the days when I had exceptionally good hearing I could hear all sorts of subtleties in sound, all quite conventional stuff. I knew I was in trouble when I began to hear splices go by in live symphony performances.

On 6/17/2016 9:49 AM, Russ Dworakowski WB3FAU via BoatAnchors wrote:

> Hi Scott, 2A3s considered by some to be the best hi-fi sound available, at least at an early stage in hi fi history. So may I ask, what kind of speakers do you drive with that 2A3 amp? Perhaps something with 18 inch woofers? I like horns myself used in the mid and high freqs. Something with real high efficiency, not needing much power to fill a room with sound. Sorry for the change in direction on the thread. 73s Russ.

> ---- Scott Robinson via BoatAnchors <boatanchors at theporch.com> wrote:

>> Hi John,

>>

>> The core will nearly\* always saturate if the frequency is low enough. To find where that is, set the gain for just below clipping at 1 KHz and turn the gain down. You will eventually find either regular clipping or a kind of diagonal clipping.

>>

>> \*I have one home brew PP 2A3 amplifier that is good for about 12 Watts but has an enormous output transformer that looks big enough for 50W. Down to 20 Hz, no core saturation.

>>

>> Few people choose transformers this way, so my 'nearly always' stands.

>>

>> Peace,

>>

>> Scott

>>

>> On 6/15/16 3:28 PM, John Sehring via BoatAnchors wrote:

>>>

>>>

>>> On Point 4, how do you tell when the core is saturated? Possible that might not take place due to output tube and/or B+ PS limitations?

>>>

>>> ==John VE6EQR

```

>>>
>>>
>>> =====
>>>
>>> From: Scott Robinson <spr at earthlink.net>
>>> To: Richard Knoppow <1oldlens1 at ix.netcom.com>,
>>>
>>> Hi Richard,
>>>
>>> The AC balance matters, too, even in class A service. After all, one of
>>> the major virtues of class A is that it out all the even order
>>> distortion products, and this is only true if the two sides are equal.
>>> Here's how I adjust my 3 pots (bias, DC balance, and AC balance):
>>>
>>> 1) Preset both balance pots in the middle of their ranges.
>>>
>>> 2)Apply power and set the bias for the cathode current you want.
>>>
>>> 3) Feed in a 1 kHz sine wave and measure the output distortion. Adjust
>>> gain for near clipping and adjust the AC balance pot for minimum distortion.
>>>
>>> 4) Move the frequency to 50 Hz or whatever is the lowest frequency your
>>> output transformer will permit without core saturation. Leave the level
>>> set near clipping.
>>> Adjust the DC balance pot for minimum distortion.
>>>
>>> You can repeat steps 3 and 4 if you like.
>>>
>>> Both distortion adjustments will have quite a deep null, resulting in a
>>> large reduction from nominal center, and tube balancing, while
>>> desirable, is no longer fussy. You can use the tubes you have and save
>>> money, too.
>>>
>>> Regards,
>>>
>>> Scott
>>> -----
>>> BoatAnchors mailing list
>>> BoatAnchors at theporch.com
>>> https://minime.theporch.com/mailman/listinfo/boatanchors
>>>
>> -----
>> BoatAnchors mailing list
>> BoatAnchors at theporch.com
>> https://minime.theporch.com/mailman/listinfo/boatanchors
>
> -----
> BoatAnchors mailing list

```

> BoatAnchors at theporch.com  
> <https://minime.theporch.com/mailman/listinfo/boatanchors>  
>

--

Richard Knoppow  
1oldlens1 at ix.netcom.com  
WB6KBL

From wb3fau55 at neo.rr.com Fri Jun 17 17:40:55 2016  
From: wb3fau55 at neo.rr.com (wb3fau55 at neo.rr.com)  
Date: Fri, 17 Jun 2016 17:40:55 -0400  
Subject: [BoatAnchors] Tube matching  
In-Reply-To: <cc4bab97-2bd3-75f7-6a3c-23ae8a4c5237@ix.netcom.com>  
Message-ID: <20160617214055.VYZ9D.228486.root@cdptpa-web24>

Richard, a friend had Klipsch LaScalas, I only have Cornwalls. you really need the room [treated acustically] for this stuff. They really play loud, lucky for me, at 61, my hearing is still quite good. Listening to records, over a year ago, I thought my hi-freq. were fading. As it turned out, it was my failing Audio Technica cart! I put in my old Shure V15 type 3 and the highs came back-hi! I still like records better than most CDs. 73s Russ.

---- Richard Knoppow via BoatAnchors <boatanchors at theporch.com> wrote:

> Mine, which are in storage at the moment, are c.1936 RCA Shearer  
> horns with M-G-M spec HF drivers (aluminum diaphragms rather than  
> Bakelite impregnated cloth). The woofers are 15". I narrowly missed a  
> pair of Western Electric Mirrophonic speakers of the same general type  
> but they got trashed before arrangements could be made to release them.  
> The WE horns had two 18" "Loudspeaking Telephones" in them. The RCA HF  
> drivers are the same throat size as the later Altec 288, the WE 594  
> drivers were 2" throat. The M-G-M spec drivers go out to 15Khz while the  
> 594 (and later JBL 375) cut off pretty sharply at 8Khz. For motion  
> picture reproduction of photographic sound tracks response above 8Khz is  
> unnecessary. I had the RCA speakers in a garage for a while with home  
> built cross-over networks. It was surprisingly good sounding with very  
> authoritative bass. The horns cut off at around 50Hz but have enough  
> reserve to get down to about 40Hz. I used plain old battery chargers  
> with a large capacitor added for field supplies. I would love to get  
> these out of storage again but have no place to set them up plus my  
> hearing is not very good any more.

> These old theater speakers were designed when efficiency was  
> important. Typical small theater amplifiers ran around 10 watts, the  
> largest amps for very large theaters (thousands of seats) were about 50  
> Watts. Audiophools get the strangest ideas about tubes, like the almost  
> religious opinions of the old WE 300B. I wonder what they are hearing.  
> Back in the days when I had exceptionally good hearing I could hear all  
> sorts of subtleties in sound, all quite conventional stuff. I knew I was

> in trouble when I began to hear splices go by in live symphony  
> performances.  
>  
> On 6/17/2016 9:49 AM, Russ Dworakowski WB3FAU via BoatAnchors wrote:  
> > Hi Scott, 2A3s considered by some to be the best hi-fi sound available, at  
at least at an early stage in hi fi history. So may I ask, what kind of speakers  
do you drive with that 2A3 amp? Perhaps something with 18 inch woofers? I like  
horns myself used in the mid and high freqs. Something with real high efficiency,  
not needing much power to fill a room with sound. Sorry for the change in  
direction on the thread. 73s Russ.  
> > ---- Scott Robinson via BoatAnchors <boatanchors at theporch.com> wrote:  
> >> Hi John,  
> >>  
> >> The core will nearly\* always saturate if the frequency is low enough. To  
> >> find where that is, set the gain for just below clipping at 1 KHz and  
> >> turn the gain down. You will eventually find either regular clipping or  
> >> a kind of diagonal clipping.  
> >>  
> >> \*I have one home brew PP 2A3 amplifier that is good for about 12 Watts  
> >> but has an enormous output transformer that looks big enough for 50W.  
> >> Down to 20 Hz, no core saturation.  
> >>  
> >> Few people choose transformers this way, so my 'nearly always' stands.  
> >>  
> >> Peace,  
> >>  
> >> Scott  
> >>  
> >> On 6/15/16 3:28 PM, John Sehring via BoatAnchors wrote:  
> >>>  
> >>>  
> >>> On Point 4, how do you tell when the core is saturated? Possible that might  
not take place due to output tube and/or B+ PS limitations?  
> >>>  
> >>> ==John VE6EQR  
> >>>  
> >>>  
> >>> =====  
> >>>  
> >>> From: Scott Robinson <spr at earthlink.net>  
> >>> To: Richard Knoppow <1oldlens1 at ix.netcom.com>,  
> >>>  
> >>> Hi Richard,  
> >>>  
> >>> The AC balance matters, too, even in class A service. After all, one of  
> >>> the major virtues of class A is that it out all the even order  
> >>> distortion products, and this is only true if the two sides are equal.  
> >>> Here's how I adjust my 3 pots (bias, DC balance, and AC balance):



> >>>  
> >>> 1) Preset both balance pots in the middle of their ranges.  
> >>>  
> >>> 2) Apply power and set the bias for the cathode current you want.  
> >>>  
> >>> 3) Feed in a 1 kHz sine wave and measure the output distortion. Adjust  
> >>> gain for near clipping and adjust the AC balance pot for minimum distortion.  
> >>>  
> >>> 4) Move the frequency to 50 Hz or whatever is the lowest frequency your  
> >>> output transformer will permit without core saturation. Leave the level  
> >>> set near clipping.  
> >>> Adjust the DC balance pot for minimum distortion.  
> >>>  
> >>> You can repeat steps 3 and 4 if you like.  
> >>>  
> >>> Both distortion adjustments will have quite a deep null, resulting in a  
> >>> large reduction from nominal center, and tube balancing, while  
> >>> desirable, is no longer fussy. You can use the tubes you have and save  
> >>> money, too.  
> >>>  
> >>> Regards,  
> >>>  
> >>> Scott  
> >>> -----  
> >>> BoatAnchors mailing list  
> >>> BoatAnchors at theporch.com  
> >>> <https://minime.theporch.com/mailman/listinfo/boatanchors>  
> >>>  
> >> -----  
> >> BoatAnchors mailing list  
> >> BoatAnchors at theporch.com  
> >> <https://minime.theporch.com/mailman/listinfo/boatanchors>  
> >  
> > -----  
> > BoatAnchors mailing list  
> > BoatAnchors at theporch.com  
> > <https://minime.theporch.com/mailman/listinfo/boatanchors>  
> >  
>  
>  
> --  
> Richard Knoppow  
> 1oldlens1 at ix.netcom.com  
> WB6KBL  
> -----  
> BoatAnchors mailing list  
> BoatAnchors at theporch.com  
> <https://minime.theporch.com/mailman/listinfo/boatanchors>

From wb0eq at yahoo.com Fri Jun 17 17:50:04 2016  
From: wb0eq at yahoo.com (John Sehring)  
Date: Fri, 17 Jun 2016 21:50:04 +0000 (UTC)  
Subject: [BoatAnchors] Balnce of pp amps  
References: <936324644.5041223.1466200204987.JavaMail.yahoo.ref@mail.yahoo.com>  
Message-ID: <936324644.5041223.1466200204987.JavaMail.yahoo@mail.yahoo.com>

Thank you Brian, Scott, and Don for more insight on amplifier AC and DC balance & output transformer saturation.

I have printed off your notes for future use.

--John Sehring VE6EQR-WB0EQ nr Calgary, Alberta, Canada

From 1oldlens1 at ix.netcom.com Fri Jun 17 18:32:50 2016  
From: 1oldlens1 at ix.netcom.com (Richard Knoppow)  
Date: Fri, 17 Jun 2016 15:32:50 -0700  
Subject: [BoatAnchors] Tube matching  
In-Reply-To: <20160617214055.VYZ9D.228486.root@cdptpa-web24>  
References: <20160617214055.VYZ9D.228486.root@cdptpa-web24>  
Message-ID: <f01a9fc7-bbe6-c8c8-f5cc-9c8f5eb8a934@ix.netcom.com>

The Klipsch speakers sound pretty good. A friend who built two Klipschorns discovered the slight boom in the bass would go away if they were on furniture legs about four inches high. I met and talked with Paul Klipsch at AES conventions a few times. An interesting fellow. Of course, the Klipschorns were inspired by the Shearer horns developed at M-G-M and Lansing. They are too big for home use. I have stories about the development of this system but am drawing blanks on important names right now. The Shearer horns were inspired by the very large folded horns used by Harvey Fletcher for the Bell Labs stereo experiments C.1934 and later. This was AFAIK the first application of multicell HF horns. Fletcher's horns were nearly eight feet across the mouth. Reportedly some still exist. At the time there was no standard loudspeaker system for theatrical motion picture use. Western Electric and RCA, the principle suppliers, each used different arrangements of direct radiators and large curled horns. It was impossible to know what a movie would sound like in exhibition so it was desired to have a standardized system of some sort that would meet the requirements of theaters. The work was a co-operative effort of Bell Labs, RCA, M-G-M and Lansing. Lansing built the first of the speakers.

More when my brain gets working better.

I mentioned the brand name Mirrophonic. One will see this on some movies made in the mid-1930s. It was Western Electric's brand name for a

system using the Shearer horns for reproduction and their noise reduction system in recording. Shearer is for Douglas Shearer, brother of Norma Shearer, who was head of M-G-M's sound department from its beginning until around 1960 when he retired.

Oh, golly, I am having names knocking on the black wall in my mind trying to come through. One is a very important engineer who worked for M-G-M and later Lansing sound John (blank). Someone else I knew. I hate it when names and words hide.

This is all very off topic other than motion picture sound equipment of the time was certainly the ultimate in boatanchor gear.

On 6/17/2016 2:40 PM, wb3fau55 at neo.rr.com wrote:

> Richard, a friend had Klipsch LaScalas, I only have Cornwalls. you really need the room [treated acoustically] for this stuff. They really play loud, lucky for me, at 61, my hearing is still quite good. Listening to records, over a year ago, I thought my hi-freq. were fading. As it turned out, it was my failing Audio Technica cart! I put in my old Shure V15 type 3 and the highs came back-hi! I still like records better than most CDs. 73s Russ.

> ---- Richard Knoppow via BoatAnchors <boatanchors at theporch.com> wrote:

--

Richard Knoppow  
1oldlens1 at ix.netcom.com  
WB6KBL

From navy.radio at gmail.com Fri Jun 17 19:32:11 2016

From: navy.radio at gmail.com (Nick England)

Date: Fri, 17 Jun 2016 19:32:11 -0400

Subject: [BoatAnchors] Tube matching

In-Reply-To: <f01a9fc7-bbe6-c8c8-f5cc-9c8f5eb8a934@ix.netcom.com>

References: <20160617214055.VYZ9D.228486.root@cdptpa-web24>

<f01a9fc7-bbe6-c8c8-f5cc-9c8f5eb8a934@ix.netcom.com>

Message-ID: <CAB55hNe0\_JCyOQ--CkuW5LRJdWp8ptNH\_cRzkRkw8drU-HhCkQ@mail.gmail.com>

Interesting thread.

Slightly on topic - anyone want a pair of Klipsch Heresy spkrs? \$100 for the pair. Pickup only in Durham NC. Some water damage to the bottom of one but just cosmetic.

Would sound awfully good hooked up to your SX-42.....

--

Nick England K4NYW  
www.navy-radio.com

From listown at nanniandjack.com Sat Jun 18 19:01:09 2016  
From: listown at nanniandjack.com (List Manager)  
Date: Sat, 18 Jun 2016 17:01:09 -0600  
Subject: [BoatAnchors] Jail Time!  
Message-ID: <f2a52659e90e8252a5554edbe00a31ec@nanniandjack.com>

Gang-

I must be getting too subtle in my old age... and, by the way, I particularly enjoyed Nick's response to my Mouse Droppings thread

We now have two new inhabitant of posting jail... we have a DIGEST option that allows for threaded reads, so aside from laziness, rudeness, or a complete brain pharte, there should be \*NO\* extraneous text in responses to list messages.

As has happened before, sometimes those in jail get all butthurt and either threaten to leave the list, or actually do leave. In spite of these current two generally having good contributions in their posts, it is time for some "enforced civility", and if you leave, we'll miss you, but it's less work for me.

Be nice, be kind, respect your fellow fireballers, and have fun... just trim your text so we can ALL have fun!

--

Jack Hill, W4KH - BoatAnchors Listowner/Archiver  
listown at nanniandjack.com  
"Plus ca change, plus c'est la meme chose"  
"Il n'y a que les idiots qui ne changent jamais d'idee"

From garygarlic at earthlink.net Sun Jun 19 11:43:21 2016  
From: garygarlic at earthlink.net (Gary Woods)  
Date: Sun, 19 Jun 2016 11:43:21 -0400  
Subject: [BoatAnchors] Sighting, sort of  
Message-ID: <qvedmbltfroia3n9ckirbt7dp42rpk64ob@4ax.com>

I was at an antique engine/tractor show yesterday, (Sharon Springs, upstate NY) and spotted a jeep with big fishpole antenna and radio box in the rear. Found the owner and found out that it was a 50s-era civilian jeep painted in army colors. He had no idea that the box containing a BC-221 wasn't \_really\_ a radio set in itself. Explained what it did and that one I have can still be calibrated after all these years, so the reference crystal was really well made.

He also had a restored M-41 tank running up a hillside on the grounds,

which was pretty cool.

Dropped a few not-so subtle hints that there are now more Ham radio licenses than ever, and code is not required, though many new licensees are learning it out of necessity.

--

Gary Woods AKA K2AHC- PGP key on request, or at [home.earthlink.net/~garygarlic](http://home.earthlink.net/~garygarlic)  
Zone 5/4 in upstate New York, 1420' elevation. NY WO G

From arc5 at ix.netcom.com Sun Jun 26 12:38:46 2016  
From: arc5 at ix.netcom.com (David Stinson)  
Date: Sun, 26 Jun 2016 11:38:46 -0500  
Subject: [BoatAnchors] NRC Set: Another Programmable Osc. Success.  
Message-ID: <FF729C63AB494E8DA588B9B2AE8D0F18@DaddyPC>

Got the little Northern Radio Company type 450  
working well on the four most popular AM freqs  
here in North Texas: 3885, 3890, 7160 and 7290.  
Will soon add 3880. 25 W unmodulated carrier  
out into 50-Ohms on all freqs.

While I was able to scrounge or etch crystals  
for three of the four freqs, the 6705 Receive  
(7160-455KC IF = 6705) eluded me. I tried  
twice to etch a 6650 CR-1 blank up to 6705,  
but etching with WHINK can be unpredictable.  
In both cases I etched them too far and CR-1  
blanks do not "rubber down" very well. They'll  
go dead on you quickly. So I got tired of  
fighting with it and ordered a 6705  
programmable oscillator for \$4.10 from Digikey.  
Installed it in an empty FT-243 holder.  
<https://goo.gl/photos/3xoam8dD2oHcDTjr6>

I've written many times about this so won't go  
into great detail. Since this 1963 set uses  
a germanium-transistor receiver, it doesn't need  
the heavy LO injection some of my earlier tube  
sets have needed. The output of the Prog. Osc.  
is coupled directly to the RX Xtal socket with  
a 100 pFd cap, rather than the .004 uFd used  
in my tube sets. The primary 13.5 VDC supply  
is bucked-down to regulated 5 VDC with one of  
those nifty little DC-DC boards you can get for  
cheap on Ebay.

.1 uFd bypass across Vcc and GND.  
Connected the juice, aligned the channel  
and away we go. Workie goodie.  
<https://goo.gl/photos/5kzkZ93ijw3YZ3Dp6>

I have no birdies from the little DC-DC thingie,  
but if you do, glue a little piece of ferrite or steel  
on top of the tiny inductor and the birdie will fly away.

73 OM DE Dave AB5S

From wb0eq at yahoo.com Wed Jun 29 10:22:32 2016  
From: wb0eq at yahoo.com (John Sehring)  
Date: Wed, 29 Jun 2016 14:22:32 +0000 (UTC)  
Subject: [BoatAnchors] Outrageous tube audio amp  
References: <512635248.3753062.1467210152264.JavaMail.yahoo.ref@mail.yahoo.com>  
Message-ID: <512635248.3753062.1467210152264.JavaMail.yahoo@mail.yahoo.com>

No, I don't have one of these nor do I want one. I blanch at what the price might be. I didn't look.

No, I don't not consider myself an audiophool.

<http://www.amberwaveaudio.com/index.htm>  
--John Sehring VE6EQR-WB0EQ nr Calgary, Alberta, Canada

From kb8tad at gmail.com Wed Jun 29 11:06:00 2016  
From: kb8tad at gmail.com (Rich Post)  
Date: Wed, 29 Jun 2016 11:06:00 -0400  
Subject: [BoatAnchors] Outrageous tube audio amp  
In-Reply-To: <512635248.3753062.1467210152264.JavaMail.yahoo@mail.yahoo.com>  
References: <512635248.3753062.1467210152264.JavaMail.yahoo.ref@mail.yahoo.com>  
<512635248.3753062.1467210152264.JavaMail.yahoo@mail.yahoo.com>  
Message-ID: <CAEJr0Fs\_iqKQXYwb06gDXb9dnocr68tey72Th8JySead22L\_D2Q@mail.gmail.com>

An artistically beautiful piece!. Probably sold for same reason some people buy Rolex. My \$12 Seiko from Big Lots is on its third watch band.

Rich KB8TAD

From dave at horsfall.org Wed Jun 29 20:31:44 2016  
From: dave at horsfall.org (Dave Horsfall)  
Date: Thu, 30 Jun 2016 10:31:44 +1000 (EST)  
Subject: [BoatAnchors] Outrageous tube audio amp

In-Reply-To: <512635248.3753062.1467210152264.JavaMail.yahoo@mail.yahoo.com>  
References: <512635248.3753062.1467210152264.JavaMail.yahoo.ref@mail.yahoo.com>  
<512635248.3753062.1467210152264.JavaMail.yahoo@mail.yahoo.com>  
Message-ID: <alpine.BSF.2.11.1606301029420.75492@aneurin.horsfall.org>

On Wed, 29 Jun 2016, John Sehring via BoatAnchors wrote:

> No, I don't have one of these nor do I want one. I blanch at what the  
> price might be. I didn't look.

OK, here's a teaser from their home page:

``The directly heated triode design coupled to an enormous output  
transformer provides an exceptionally wide frequency response - with the  
power to reproduce musical transients that require huge amounts of  
current. It makes the 304TL an immaculate source for consistently  
elegant, detailed and natural sound.''

--

Dave Horsfall DTM (VK2KFU) "Those who don't understand security will suffer."

From donreaves at gmail.com Wed Jun 29 21:02:25 2016  
From: donreaves at gmail.com (Don Reaves)  
Date: Wed, 29 Jun 2016 20:02:25 -0500  
Subject: [BoatAnchors] Outrageous tube audio amp  
In-Reply-To: <alpine.BSF.2.11.1606301029420.75492@aneurin.horsfall.org>  
References: <512635248.3753062.1467210152264.JavaMail.yahoo.ref@mail.yahoo.com>  
<512635248.3753062.1467210152264.JavaMail.yahoo@mail.yahoo.com>  
<alpine.BSF.2.11.1606301029420.75492@aneurin.horsfall.org>  
Message-ID: <CAEj02LYew4Q16t038bjekxfGYWWD2gRob5wVQ0BMjJ6VjH2oTg@mail.gmail.com>

\$33K for a pair of these amps, per Google.

W50R

From n7rk at cox.net Wed Jun 29 23:10:57 2016  
From: n7rk at cox.net (Dave Hollander)  
Date: Wed, 29 Jun 2016 20:10:57 -0700  
Subject: [BoatAnchors] Outrageous tube audio amp  
In-Reply-To: <Cp2n1t0081qvwco01p2qqj>  
References: <512635248.3753062.1467210152264.JavaMail.yahoo.ref@mail.yahoo.com>  
<512635248.3753062.1467210152264.JavaMail.yahoo@mail.yahoo.com>  
<alpine.BSF.2.11.1606301029420.75492@aneurin.horsfall.org>  
<Cp2n1t0081qvwco01p2qqj>  
Message-ID: <57748DC1.30602@cox.net>

Sounds like a bargain. There was another 304TL audiophile amp a few years ago going for \$85K.

This is the other one.

<http://www.alumrocktech.com/amplifier.shtml>

Dave N7RK

--

Dave Hollander  
Arizona Tube Supply  
<http://arizonatubesupply.com>

From w7qho at aol.com Thu Jun 30 01:45:34 2016  
From: w7qho at aol.com (Dennis DuValll)  
Date: Wed, 29 Jun 2016 22:45:34 -0700  
Subject: [BoatAnchors] Outrageous tube audio amp  
In-Reply-To: <CAEj02LYew4Q16t038bjekxfGYWWD2gRob5wVQ0BMjJ6VjH2oTg@mail.gmail.com>  
References: <512635248.3753062.1467210152264.JavaMail.yahoo.ref@mail.yahoo.com>  
<512635248.3753062.1467210152264.JavaMail.yahoo@mail.yahoo.com>  
<alpine.BSF.2.11.1606301029420.75492@aneurin.horsfall.org>  
<CAEj02LYew4Q16t038bjekxfGYWWD2gRob5wVQ0BMjJ6VjH2oTg@mail.gmail.com>  
Message-ID: <0D105215-555E-495C-8E0B-32A4AA4612B1@aol.com>

Come with great bragging rights though?

Dennis D. W7QH0  
Glendale, CA

\*\*\*\*\*

> On Jun 29, 2016, at 6:02 PM, Don Reaves via BoatAnchors <boatanchors at theporch.com> wrote:

>

> \$33K for a pair of these amps, per Google.

>

> W50R

>

> -----  
> BoatAnchors mailing list

> BoatAnchors at theporch.com

> <https://minime.theporch.com/mailman/listinfo/boatanchors>



From venchant at hotmail.com Thu Jun 30 12:50:06 2016  
From: venchant at hotmail.com (Venchant .)  
Date: Thu, 30 Jun 2016 11:50:06 -0500  
Subject: [BoatAnchors] Artistically Beautiful Things  
In-Reply-To: <mailman.1578.1467248566.226.boatanchors@theporch.com>  
References: <mailman.1578.1467248566.226.boatanchors@theporch.com>  
Message-ID: <BAY177-W42F3D466388DE8843F1B7BC2240@phx.gbl>

The "chimney" structures surrounding the 304TL's really do look nice. This duo put a lot of thought into the aesthetics'

>An artistically beautiful piece!. Probably sold for same reason some people buy Rolex. My \$12 Seiko from Big Lots is on its third watch band.

>Rich KB8TAD

Heck, Rich. Once I found out replacement watch bands cost more than a new cheap watch, I just get a new watch every 2-3 years. My current band is holding in there on the \$9 watch, with the help of some super-glued Velcro strip trimmed to fit the plastic band.

Mark K9TR

From venchant at hotmail.com Thu Jun 30 12:51:57 2016  
From: venchant at hotmail.com (Venchant .)  
Date: Thu, 30 Jun 2016 11:51:57 -0500  
Subject: [BoatAnchors] Artistically beautiful tube chimneys  
In-Reply-To: <mailman.1578.1467248566.226.boatanchors@theporch.com>  
References: <mailman.1578.1467248566.226.boatanchors@theporch.com>  
Message-ID: <BAY177-W44231123B1643CC8E797FFC2240@phx.gbl>

The "chimney" structures surrounding the 304TL's really do look nice. This duo put a lot of thought into the aesthetics'

>An artistically beautiful piece!. Probably sold for same reason some people buy Rolex. My \$12 Seiko from Big Lots is on its third watch band.

>Rich KB8TAD

Heck, Rich. Once I found out replacement watch bands cost more than a new cheap watch, I just get a new watch every 2-3 years. My current band is holding in there on the \$9 watch, with the help of some super-glued Velcro strip trimmed to fit the plastic band.

Mark K9TR

From navy.radio at gmail.com Thu Jun 30 14:21:32 2016

From: navy.radio at gmail.com (Nick England)  
Date: Thu, 30 Jun 2016 14:21:32 -0400  
Subject: [BoatAnchors] USN Equipment Directories  
Message-ID: <CAB55hNdyvbf09pPLCDcr5E7tTPkhfkBkRqYAo6FjK10G+pMbHg@mail.gmail.com>

I've just scanned about 2500 pages of NAVSHIPS 94200.4, Directory of Electronics Test Equipment (1963 with 1965 supplement). I have OCR'ed it so the text is searchable.

This Directory has 2-page listings for every piece of equipment, usually including a description, components, manual number, contract info. etc.  
<http://www.navy-radio.com/manuals/test-94200.4.htm>

The corresponding Directory of Communications Equipment 94200.1 is at  
<http://www.navy-radio.com/manuals/94200.htm>

Cheers,  
Nick England K4NYW  
[www.navy-radio.com](http://www.navy-radio.com)

From arc5 at ix.netcom.com Thu Jun 30 14:59:20 2016  
From: arc5 at ix.netcom.com (=?utf-8?B?YXJjNUBpeC5uZXRjb20uY29t?=  
Date: Thu, 30 Jun 2016 18:59:20 GMT  
Subject: [BoatAnchors] USN Equipment Directories  
Message-ID: <000f4242.6c2ffde5399ceb4@ix.netcom.com>

Nick, your Herculean efforts continue to put you in the top tier, sir. Thank you for all of this work.

Sent from my ain't-so-smartphone.

From kb8tad at gmail.com Thu Jun 30 15:39:45 2016  
From: kb8tad at gmail.com (Rich Post)  
Date: Thu, 30 Jun 2016 15:39:45 -0400  
Subject: [BoatAnchors] USN Equipment Directories  
In-Reply-To: <CAB55hNdyvbf09pPLCDcr5E7tTPkhfkBkRqYAo6FjK10G+pMbHg@mail.gmail.com>  
References: <CAB55hNdyvbf09pPLCDcr5E7tTPkhfkBkRqYAo6FjK10G+pMbHg@mail.gmail.com>  
Message-ID: <CAEJr0FunfW5eDgo7BB0MXtkXKAnqWzA9No=HTgmqY0q2JogrbQ@mail.gmail.com>

Nick all I can say is WOW!!  
Many thanks,

Rich KB8TAD

From w5sum at comcast.net Thu Jun 30 15:49:29 2016  
From: w5sum at comcast.net (Ronnie Hull)  
Date: Thu, 30 Jun 2016 14:49:29 -0500  
Subject: [BoatAnchors] Repairing a B&W 851  
Message-ID: <1A1895A7-3147-4DBE-9BBA-BB2BFC70B959@comcast.net>

Howdy gents! I have a NIB B&W 851 inductor/bandswitch that I want to use in a project. Unfortunately the plastic rod used to support the inductor has deteriorated as they all seem to do.  
Has anyone ever come up with a way to successfully repair this malady?

Thanks in advanced

Ronnie W5SUM

Sent from Ronnie's iPhone